MISSOURI BOTANICAL GARDEN
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Plate 3

Large fruited acutiloba — but the expression should be understood and fruited specimens ought to be examined for certain characters, which do occur e.g. along the Lake = Niagara, Detroit etc. — Cultivate them a

12 ~~Prospect Terrace~~ As has so often above the species has been confused with other species, to which, and to each, it bears a certain resemblance, but the characters enumerated, especially those of the disposition of the stipules, the form of the leaves above all the seeds distinguish it as well as any two species can be distinguished

Very superior sandy a low bushy plant of wet and rocky or wet rocky banks, but not confined to them, and less rare than above (3 inches wide) with a broad, often slightly heart-shaped base, and a short petiole, a very pale green color, the branches seeds with obtuse ~~[illegible]~~ of very small size, a native of the Rocky Mts. to Texas, also on the Rocky Mts. and Nebraska, its favorite locality are the gravelly banks of rivers and streams, more rarely (?) on rocky plains — in Missouri it is called Sand Grape — Dr Lindheimer found it also on Sugar Grape — Dr Parry met with it in Colorado and makes as his judgment upon it as well as any two species it is next to the Cal species for grapes found there on it as it grows easily from cuttings — I put it back with plants as it readily roots.

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G. Engelmann on the species of Vitis in Missouri

Trans. St. Acad. Sciences I 660 (1860)

recognizes only V. aestivalis & V. cordifolia (including riparia)
in Missouri; states that V. labrusca is an eastern species
and that V. rupestris cannot be established in cultivation.
V. rupestris seems to grow also in Missouri.

Gray's Manuals etc in Amsbury Catalogue 1875 p. 4-7

In Gray's Manual of 1856 Vitis cordifolia &
riparia are placed together

513 also in ed 5 of 1868. but in addenda
of 1868 they are separated by me

Addenda of St Louis Club Jan 1878
& May 1879 both are more
clearly distinguished

took for Shaw

Department of the Interior,

CENSUS OFFICE,

Brookline, Mass., April 9th, 1881.

Dear Sir,

I have a letter from Carter
& Bryan have sent it please
to me.
Yours
I observe that he
is the first one writing

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roots from being thrown to the surface by alternate freezing and thawing, a mound of earth hoed up around the plants, or a ridge thrown up with a plow, so as to elevate the ground somewhat in the rows, will be found to afford all the protection necessary. By no means delay planting till *late* in spring (after May first here), and if your ground is not ready in time, you had much better cultivate it with corn or hoed crops of some kind, and postpone planting until next fall. Planting in rows, six feet apart, is now the usual method; it gives sufficient space for a horse and man to pass through with plow or cultivator; the distance in the rows varies somewhat with the growth of the different varieties and the richness of the soil. Most of our vigorous, strong growers, the Concord, Ives, Hartford, Clinton, Taylor, Norton, Herbemont, will need eight to ten feet in the rows; Scuppernongs are planted 20 to 30 feet apart; while the Delaware, Catawba, Creveling, Iona, may have sufficient room when planted six feet apart. The dwarfing treatment practiced with European varieties, especially by German vintners, will not do for American vines, which must have ample room to spread and a free circulation of air. The number of vines required to set an acre (containing 43,560 square feet), will be:

DISTANCE, FEET.	METRES.	NUMBER.
5 ft. by 5 ft.	1 m 54 by 1 m 54	1,742
5 ft. by 6 ft.	1 m 54 by 1 m 85	1,452
6 ft. by 6 ft.	1 m 85 by 1 m 85	1,210
6 ft. by 7 ft.	1 m 85 by 2 m 15	1,037
6 ft. by 8 ft.	1 m 85 by 2 m 46	907
6 ft. by 9 ft.	1 m 85 by 2 m 75	807
6 ft. by 10 ft.	1 m 85 by 3 m	725
7 ft. by 7 ft.	2 m 15 by 2 m 15	889
7 ft. by 8 ft.	2 m 15 by 2 m 46	777
7 ft. by 9 ft.	2 m 15 by 2 m 75	690
7 ft. by 10 ft.	2 m 15 by 3 m	622
8 ft. by 8 ft.	2 m 46 by 2 m 46	680
8 ft. by 9 ft.	2 m 46 by 2 m 75	605
8 ft. by 10 ft.	2 m 46 by 3 m	544
9 ft. by 9 ft.	2 m 75 by 2 m 75	537
9 ft. by 10 ft.	2 m 75 by 3 m	484
10 ft. by 10 ft.	3 m by 3 m	435

1 acre = 41 *ares* French measure, or one *Hectare* nearly equal to two and a half acres.

Having determined the distance at which you desire to plant the vines, mark off the rows, running them parallel, and with the most level lines of your slope or hillside, so that you may easily plow between the rows and that the ground may not wash. (On an eastern slope the rows will therefore run in a direction from north to south, which most vine dressers prefer.) Be careful, on sloping ground, to leave spaces for surface drains, the steeper the hillsides the more frequent must these surface drains be. Then divide the rows into the desired distances, by the aid of a stretched line, and put small stakes where each plant is to stand. Now, if the ground is sufficiently dry so as to pulverize well, make the holes to receive the vines, as shown in fig. 19. The depth of these holes must necessarily vary somewhat with the nature of the soil. On very steep hillsides,

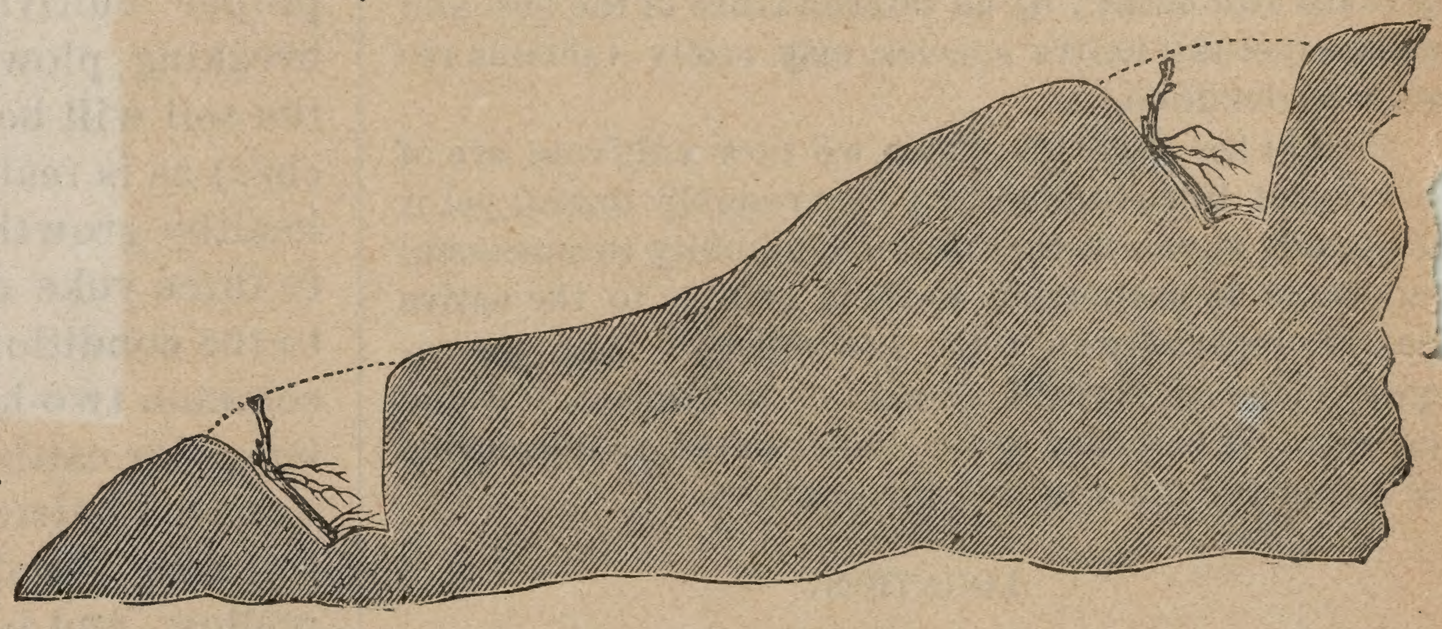

Fig. 19.

and especially on southern slopes, with naturally warm, dry soil, you must plant deeper than on gentle slopes with deep, rich soil, or on bottom land and rich prairies. Eight inches will be deep enough on the latter; on the former we should plant from twelve to fourteen inches deep.

Having made the holes, and it is best not to make too many at a time, as the ground will dry out too quickly, you can go to planting.

We do not intend to discuss here the various modes of multiplication or propagation of grape vines from cuttings, layers or single eyes (buds), still less the production of new varieties from seed and Hybridizing, as this would far exceed the scope of this brief Manual, nor do we desire to say whether you should plant cuttings or rooted plants, and whether plants grown from cuttings, from single eyes or layers, are preferable. Propagators and nurserymen are not considered disinterested, impartial judges on this question. But we may reasonably suppose that those who read this catalogue are either our customers or desire to purchase rooted vines from us, and want to get *the best plants*. Vines raised from layers were in former years held to be superior, and are still preferred by many, but unprejudiced and observing cultivators have found that they only *look* stronger and finer, but are *not as good* as plants properly

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3. Hybrids between *Delaware* and *Vinifera:*—

CROTON, ITHAKA, WYLIE'S DELAWARE HYBRIDS.

By crossing the *Delaware* with *Diana* were produced the ONONDAGA and WALTER, perhaps also RARITAN; by a cross of Delaware and Cordifolia Mr. Rickett produced the PUTNAM, and finally, some crosses between Hybrids were produced.

So far most Hybrids produced were between *Labr.* and *Vinifera;* as the former have a tendency to leaf mildew, to fruit rot, and roots subject to the attacks of Phylloxera; the production of a healthy, resisting form, in a Hybrid between these and the here still more unhealthy Vinifera, is highly improbable, especially when some tender, glass-house grown variety is used for that purpose. Only by the selection of the most healthy and hardy varieties of a native and foreign species, or, perhaps still better, by an intermixture of the best and most vigorous native species, may really valuable results be obtained.

Most of the Hybrids which we now cultivate are of too recent introduction to be thoroughly tested; yet it is already apparent that their adaptability to successful culture is in proportion to their affinity to the native parent, especially in roots and foliage. And the requirements of Hybrid grapes, as to climate, soil and aspect, will be found quite similar to the requirements of one or the other of their progenitors.

LOCATION.

The only *general* rules we can give, to guide us in the selection of a proper, desirable location for vineyards, are:

1. A good wine-growing region is one where the season of growth is of sufficient length to ripen to perfection our best wine grapes, exempt from late spring frosts, heavy summer dews, and early frosts in autumn. Do not attempt, therefore, to cultivate the grape in low, damp valleys, along creeks; low situations, where water can settle and stagnate about the roots will not answer; wherever we find the ague an habitual guest with the inhabitants, we need not look for healthy grape-vines; but on the hillsides, gentle slopes, along large rivers and lakes, on the bluffs overhanging the banks of our large streams, where the fogs arising from the water give sufficient humidity to the atmosphere, even in the hottest summer days, to refresh the leaf during the night and morning hours, there is the location of the grape.

2. A good soil for the vineyard should be a dry, calcareous loam, sufficiently deep (say three feet) loose and friable, draining itself readily. New soils, both granitic and limestone, made up by nature of decomposed stone and leaf mould, are to be preferred to those that have long been in cultivation. If you have such a location and soil, seek no further, ask no chemist to analyze its ingredients, but go at once to

PREPARING THE SOIL.

The old system of *trenching* is no more practiced, except upon very hard, stony soil, and upon steep hillsides, being too costly and of very little, if any, advantage. The plow has taken the place of the spade, and has much lessened the expense. While we would urge a thorough work in the preparation of the soil before planting the vine, and warn against planting in ditches, or worse yet in square holes, we believe that by careful grubbing (in timber lands) leaving no stumps, which would only be a continual eyesore and hindrance to proper cultivation, and then using a large breaking plow, followed by the subsoil plow, the soil will be stirred as deep (say twenty inches) as is really necessary to insure a good and healthy growth of vines. This will require two to three yoke of oxen to each plow, according to the condition of the soil. For old ground a common two-horse plow, with a span of strong horses or cattle, followed in the same furrow by a subsoil stirrer, will be sufficient to stir the soil deeply and thoroughly, and will leave it as mellow, and in its natural position as desirable. This may be done during any time of the year when the ground is open and not too wet. Most soils would be benefited by underdraining; the manner of doing it is the same as for other farm crops, except that for vines the drains should be placed deeper; it is less important on our hill sides, and too costly to be practiced to a great extent here; wet spots, however, must be drained at least by gutters, and to prevent the ground from washing, small ditches should be made, leading into a main ditch. Steep hill sides, if used at all, should be terraced.

PLANTING.

The soil being thus thoroughly prepared and in good friable condition, you are ready for planting. The proper season for doing this is in the fall, after the 1st of November, or in the spring, before the 1st of May. Most vineyards are planted in spring, and in northern, very cold localities, this may be preferable. *We* prefer fall planting; the ground will generally be in better condition, as we have better weather in the fall, and more time to spare. The ground can settle among the roots in winter; the roots will have healed and calloused over, new rootlets will issue early in spring before the condition of the ground would have permitted planting, and the young plants commencing to grow as soon as the frost is out of the ground, will start with full vigor in spring. To prevent the

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Messager agricole, Montpellier. 10 Juin 1814

Vol V. nro 5. - p. 168

514

Les Vignes sauvages des Etats-Unis par Planchon

Sect I. Muscadinia Pl.

1. Vitis rotundifolia Michx. Durand. Vitis vulpina Lin. (pro parte)
Engelm. Agriculture.

Vitis vulpina dicta acinis paucioplis purpureis in racemo parvis sapore foetido et ingrato praeditis, cute crassa carnosa Clayton N. 696 et Gronov. Virg. 1762 p. 34 [which is there given as Synon. of V. labrusca]

Sect II Euvitis Pl.

2. V. labrusca Lin. Jacq. Mich. Durand. Engelm.

3. V. candicans Engelm. Durand. V. Mustangensis Buckley

4. V. Caribaea DC. Durand. Engelm. [I never placed that among N. American species!] Floride et des Etats les plus chauds de l'Union - Antilles, Mexique, etc.

5. V. aestivalis Mich. Durand. Engelm.
var V. Lincecumii -

6. V. cordifolia Mich.
a genuina Durand
β riparia Torr. & Gr. Durand. Vitis riparia Mx.
γ Floridana Jacq. Hort Schoenbr. p. 14 tab 427. (1804)

Espèces moins tranchées et moins connues:

7. Vitis rupestris Scheele Missouri - Texas

8. Vitis monticola Buckley Texas

9. Vitis Arizonica Engelm

10. Vitis Californica Benth.

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Mey J. de Conte

Enumeration of the Vines of N. America
— Proceedings Acad Philad VI. p. 269 (1853)

1. V. Labrusca !
2 V. Lemmifolia (from description Chapt. aestivalis)
3. V. aestivalis !
4 V. Cracleata (from description, to be referred to aestivalis
5 V. vulpina (probably = V. cordifolia)
6. V. arancosa (= aestivalis vix. exemplar!
7. V. Riparia (seems to be aestivalis var)
8. V. pullaria (V cordifolia)
9. V. riparia (probably our V. cordifolia foetida)
10. V. odoratissima (seems also to belong to cordifolia)
11 V. rotundifolia !
12 V. palmata "Blands Grape" = Labrusca var?

Phenogenus:

1 V. Labrusca with 12 palmata

3. V. aestivalis with 2 Lemmifolia
4 Cracleata
6 arancosus
7 Riparia

5 V. vulpina (= cordifolia)
with 8 pullaria
9 riparia
10 odoratissima

11 V. rotundifolia

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Vitis

Native Grapes and their allies.

Varieties by H. W. Ravenel

Patent Office Report

Agricult. for 1859

p. 537

V. aestivalis with many alt. v.
var.

V. cordifolia with some —

V. rotundifolia with none

V. vulpina with one (Scuppernong)

Native Grapes of Pennsylvania etc

by J. F. Weber

1862 p. 64

Native Grapes of Arkansas Trans

& Rep. Grapes p. 37 Table 30

Southern Native Grapes

Index. p. 42

Les vignes des Etats unis, Durand.

Bull. de Horticult. vol IX. p. 338
409

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Smithsonian Institution,

Washington, D. C., May 20, 1862.

Dear Sir:

The reductions of the meteorological observations made for this Institution from 1854 to 1859, in all parts of the United States, have been printed, and form a volume of 1270 quarto pages. The general temperature tables, periodical phenomena, storms, &c., which will form the second volume of about equal size, is now in the press.

The first volume is nearly ready for distribution; and as its size and weight prevent its safe transmission by mail, we request you to inform us how you wish it sent to you, whether by Express direct to your address, or to the care of one of our agents, viz:

Swan, Brewer & Tileston, - - Boston.

American Grape vines

I. Grape vines with loose bark (at least separating in shreds with the air) & branched tendrils.

The young shoots climbing and more or less densely small

1. Vitis riparia Michx

Leaves 4-6 in. diam. more or less distinctly 3-lobed or sometimes merely toothed, the lobes acuminate, the middle one usually much longer than the lateral ones, all the species of this group remarkable for their deeply cordate leaves, with very sharp and irregular teeth; petiole 1-2 in. long, slender, usually more or less reddish; panicles 4-6 in. long, loose, many-flowered; pedicels very short; calyx-teeth very small, nearly obsolete; petals 5, spreading; stamens 5; disk 5-lobed; ovary depressed-globose; style very short; stigma 2-lobed; berries small, globose, black, with a bloom, 1-seeded; seeds obovate, with a short beak, deeply pitted on the back, with a broad ventral groove.

II. Grapes with a firmly adherent smooth bark which does not scale off; tendrils always almost simple

1. V. cordifolia Michx Leaves heart-shaped, usually tall climbing, 4-6 in. long, not much longer than broad, coarsely dentate-toothed, nearly slightly smooth and shining above, slightly downy beneath, the smallest teeth mucronate; panicles many-flowered, large branched, with a bloom, maturing late in the fall, separating from the pedicels usually with only one seed, which is short and broad and has a ventral groove. Here belong most of the forms we know. This is a common form

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and usually 3–5 lobed, with very short and blunt teeth, usually with light red or rusty, at last smooth, dull and dark shining like the preceding ones, usually larger than in both others, and infertile staminate flowers with well grown in compact bunches, carried with a distinct clear stem usually 2 or 3 with the leaves similar to longer than those of the but smaller with a very pronounced odor.

This is the most handsome evergreen throughout the middle southern states, usually found in open woods and uplands, ripening its fruits earlier than I. It is the most variable of our species and hence has gathered together obscurely into the establishment of numerous nominal species. A form which keeps leaves. Such retains the more long after they are dull green has often been mistaken for the next species with dull not green in our state. Earth forms with deeply colored rusty downy leaves, often more densely the lower of the Kanawha at the sandy with reddish stems, a peculiar form appearing like a distinct clear and in larger bunches, grows in dry bottom lands, often very high trees, on account of its thick downy leaves, which are usually called other trees with the name of Cherry. Form with the leaves at last when old, naked, and dull green and black are not rare in dry shady woods and it is not always to distinguish such forms from Coriaceous, without observing characters above all well

This is the cultivated many varieties of this valuable species, the most important of which are Dwarf Sudley, the Cypress and the Herbemont

Missouri Botanical Garden
George Engelmann Papers

518 St Louis 8 Aug 1847

Lieber Dr. Engl.,

ich habe Ihr vor 3 oder 4 Tagen per Steamer geschrieben, Ihr verschiedene Briefe von mir in Händen, aus denen Sie das Nähere ersehen. — Herr Meinig von Neustadt, welcher der die bekannten Pflanzen Meinig und Verwandten zu sammeln pflegt, hat die Güte diese Zeilen Ihnen einige historische Notizen mitzutheilen. Zufolge hat er sich angeboten bei Lust in Ihrem Auftrag, mit der er persönlich bekannt ist, die Vollendung der von mir begonnenen Arbeiten zu betreiben, so sie noch nicht ganz abgeschlossen, selbst in Gefahr mit seinen zu bringen. Ich habe sein Anerbieten mit großem Dank angenommen, und bitte Sie daß Sie mit ihm zu correspondiren. Mir scheint daß sie 11 Thlr. sein sind, 4 davon sind schon verlangt worden, und ich glaube statt 6 Thlr. ich 12 Groschen oder 1 Thlr. abschicken! ob sollen wir bei den alten daß bleiben. — Ihre gefällige Antwort die der Herr Meinig zurück bringt, wird mir sehr angenehm sein.

Ihr

Georg Engelmann

(~~of the shady river bottoms~~, # and is called river grape, bank grape
or else ~~is~~ some part of the Country chicken grape
~~is~~ the wood from New England to Texas — to the Saskatchewan
western limit of the wooded part of the Mississippi Valley;
~~—~~ the shady river bottoms is where its greatest development.
(At least ~~in~~ the western States) its fruit has a fetid — aromatic
taste — # The cultivated varieties of this form are known

2. Vitis riparia Mx Mostly a smaller plant than the last,
but with larger and more or less cut lobed thinner glabrous,
or rarely somewhat downy leaves; lobes ~~cut or the teeth~~
of the leaves long and pointed. berries ~~small~~ as small
or often larger than V. Cast mostly little & bloom
usually in much smaller bunches,
~~the ripe of the seed~~ each 6 or more with 1 or 2 seeds, ~~in each by~~ Rich
bare & clear ground Maple than the last.
This species extends as far thicket or rocks of Mer banks
west south as the last, and
much farther north, as it is the only grape vine in Lower
Canada. The northern form (but North to Michigan also the Lake
is a bank, and is more has fewer and larger berries
form has mostly smaller berries, distinctly marked; the Southern
last species, and approaches nearer to the
~~on the face of the leaves~~
with which Dr Gray in the later editions of his manual
unites it; the fruit ripens always earlier and is
(in Illinois it is often ripe by the middle of July)
~~uneatable~~ to the taste pleasanter. A number of cultivated varieties
are dependable to this species, among the Taylor, the
Delaware and probably the Clinton

3. Vitis aestivalis Mx Usually smaller than the first
already over bushes, and smaller trees; leaves large
of firmer texture than both preceding one entire or
~~with clear lobes the lobes often~~ more or less deeply

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4 *Vitis Labrusca* L. Plant usually not large, climbing over
bushes or small trees, with large entire or sometimes deeply
lobed very slightly dentate leaves, thickish and downy with
a thick whitish or usually rusty downy tomentum when young, which is retained
on the under side & but is sometimes at last disappears.
Berries large — small or moderately sized bunches,
with 2 or 3 or sometimes 4 seeds. —

519

This plant is a native of the eastern & middle
of the continent from New England to S. Carolina, & extends
into the Western States as far as the Rocky Mts
the Allegha- nies, but is not found in the Mississippi
valley. The most important (now cultivated varieties
such as the Catawba, Concord, Isabella, Hartford Prolific
and dozens of others are offspring of this species,
and are all easily recognized by the undoubted specific
characters (especially the form of the leaves and the manner of the
leaves may vary). tomentum) the down of the

5 *Vitis rotundifolia* Michx bunch, or double, with small
2 or 3 feet high & rather round
woolly hairy on the under side, with coarse or shallow teeth,
Vitis southern species & found not further north
than North Carolina and Arkansas, but may perhaps
straggle into southern Missouri. Its culberts or wild
especially the white scuppernong are highly esteemed in the
south, but do not perfect fruit in our climate.
To complete the list of grapes found in Missouri
we must mention the Sandgrape of Illinois *Vitis*
riparia Schule (named from Texas specimens found on rocky places
with us it grows on the gravelly or bars
of the Rocky and sandy banks of streams. The hills are very
its leaves are small, glabrous, It is sometimes distinctly
a fact of the ordinary grapevine, but bears small
in small bunches. Ripe with us in August
earlier than any other grape except the *V. riparia* form. — 2 Texas sugargrape